

Remarks and Arguments

Claims 1-43 have been submitted for examination. Claims 1, 4, 15, 29, 32 and 43 have been amended. Claims 5 and 33 have been canceled.

Claims 1, 4-15, 20-29 and 32-43 were rejected under 35 U.S.C. §103(a) as obvious over U.S. Patent No. 6,157,642A (Sturza.) The examiner comments that, with regard to claim 1, step (a) is performed by the Inner Decoder 87 of Sturza; step (b) is performed by the Inner Decoder 99 and step (c) is performed by the Modulator 101. The examiner admits that Sturza does not explicitly teach the use of systematic codes. However, the examiner claims that the systematic codes can be derived from the Reed-Solomon or BCH codes that are disclosed by Sturza. The examiner concludes that it would be obvious to use systematic codes to simplify the data recovery.

The examiner comments that, although applicant argues that the Sturza reference is addressed to a completely different problem than the present invention, the recitation of this problem in the claim has been given no patentable weight because it is in the preamble. However, applicant contends that one skilled in the art would not be motivated to examine the Sturza reference to solve the problem solved by the invention because Sturza has nothing to do with the problem solved by the present invention. Nor is there any other link between the reference and the present invention.

In order to clarify this difference claims 1, 15, 29 and 43 have been amended to recite that the egress block contains data from the ingress block but has a different block size. For example, claim 1 now recites, in lines 12-15, "generating a code check from the code check generated in step (a) and a new egress header associated with an egress data block containing data from the ingress data block but having a different block size..." Similar amendments have been made to the other independent claims 15, 29 and 43.

The examiner asserts that the Inner Decoder 87 of Sturza performs the generation of the code check as recited in (a) of claim 1 because it generates a new code check from the received data in order to compare the new code check with the original code check in order to determine whether the received data is in error. Applicant agrees that, internally, the decoder 87 may generate code checks and syndromes during the decoding process. However, paragraph (b) of claim 1 recites that the code

check generated in step (a) is used, together with a new egress header associated with an egress data block, to generate another code check. This other code check is then combined with the egress header and data to form the outgoing information.

Because it performs a decoding process, decoder 87 does not forward it internally-generated code checks and syndromes along with the data. In particular, what comes out of decoder 87 (as represented by the line between decoder 87 and the interleaver 88) is the decoded data. In a conventional decoder, the code checks and syndromes are used only internally to detect and correct errors and are not forwarded along with the decoded data. Sturza does not disclose anything to the contrary.

The examiner claims that step (b) is performed by the Inner Encoder 99. However, step (b) recites that the code check generated in step (a) is used to generate another code check. It is clear that, although the inner encoder 99 may generate another code check, it does not use the code checks and syndromes generated internally by inner decoder 87 to generate this other code check because these are internal to decoder 87 and not forwarded with the data. Thus, inner encoder 99 does not use the results of the inner decoder 87 (step (a)) as recited in step (b).

The examiner claims that the Modulator 101 performs the process set forth in step (c). Applicant argued that, in Sturza, the outgoing data block and header are combined before the inner encoding takes place rather than after the encoding takes place as recited in claim 1. The examiner comments that claim 1 does not recite the word "after." However, claim 1, step (c) states that outgoing information is formed by combining the egress header, egress data and the code check generated in step (b). Since step (c) uses the result of step (b), it must necessarily take place after step (b) whether the word "after" is recited explicitly or not. Thus, the recitation differs from Sturza, where the data block and header are combined by the header and payload interleaver before the inner encoding takes place.

Claims 4-14 depend, either directly or indirectly, on claim 1 and incorporate the limitations thereof. Therefore, they distinguish over the cited reference in same manner as claim 1. In addition, these claims recite additional limitations not taught or suggested by Sturza. For example, claim 4 has been amended to include the limitations of claim 5 and now recites that the code check generated from the ingress data is rotated by an

amount equal to the number of non-data bits added to a previous ingress data block. This is described at paragraph 62 of the present specification. The examiner states that Sturza discloses interleaving and that is equivalent to the recited modification. However, interleaving does not depend on the number of non-data bits added to a previous ingress word, as recited. Although the examiner contends that Reed-Solomon encoding involves rotating the data to generate a code check, interleaving, as taught by Sturza, is distinct from the encoding step and occurs before the encoding step. Consequently, claim 4 patentably distinguishes over the cited reference.

Claim 6 that the incoming data is modified to compensate for non-data bits added to the ingress data block. The examiner again equates the Sturza interleaving to this modification, pointing to Sturza, Figure 6. Applicant agrees with the examiner that Sturza teaches interleaving of the ingress data word. However, as discussed with regard to claim 4, interleaving has nothing to do with compensating for added non-data bits as recited in claim 6. Consequently, claim 6 patentably distinguishes over the cited reference.

Claim 15 recites limitations parallel to those recited in claim 1. The examiner asserts that the egress encoder recited in claim 15 corresponds to the Header Outer Encoder 85 of Sturza. The examiner further claims that, although applicant argued that claim 15 recites that the egress encoder generates a code check from the egress header and the ingress code check, claim 15 actually recites that an egress data block is derived from the ingress data block and the ingress code check. Claim 15 has been amended to clarify that the egress encoder generates a code check from both the egress header and the ingress code check. For example, claim 15 has been amended, at lines 13-16 to recite "an egress encoder that generates an egress code check from (1) a new egress header ... and (2) the ingress code check..." The Sturza Header Outer Encoder generates a code check from the header information only and does not use any code checks generated internally by the Inner Decoder 87 as discussed above. Thus, as claimed, the Header Outer Encoder of Sturza does not correspond to the recited element.

Claims 20-28 depend on claim 15 and incorporate the limitations thereof. Therefore, they distinguish over the cited reference in same manner as claim 15.

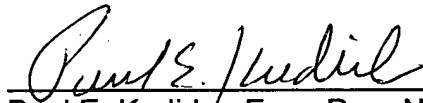
Claim 29 contains limitations that parallel those in claim 1. As discussed above, claim 1 patentably distinguishes over the cited reference. Consequently, claim 29 distinguishes over the cited reference in the same manner as claim 1.

Claims 32-42 depend, either directly or indirectly, on claim 29 and incorporate the limitations thereof. Therefore, they distinguish over the cited reference in same manner as claim 29. In addition, claim 32 has been amended to include the limitations of claim 33 in the same manner as claim 4. Consequently, claim 32 patentably distinguishes over the cited reference.

Claim 43 contains limitations that parallel those in claim 1. As discussed above, claim 1 patentably distinguishes over the cited reference. Consequently, claim 43 distinguishes over the cited reference in the same manner as claim 1.

Based on the above discussion, claims 1-4, 6-32 and 34-43 are allowable and advancement of this application to issue is respectfully requested. The Commissioner is hereby authorized to charge any fees or credits under 37 C.F.R. §1.16 and 1.17 to our deposit account No. 02-3038.

Respectfully submitted



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